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PATENT #21  
Atty. Docket No. 30454-21  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:

EDWARD W. LIU

Serial No.: 08/840,947

Filed: April 27, 1997

For: NOISE CONNECTION IN MIXED  
SIGNAL ENVIRONMENT

Group Art Unit: 2816

Examiner: D. Le

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BOARD OF PATENT APPEALS  
AND INTERFERENCES

**REQUEST FOR REHEARING**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Appellant in the above-captioned patent application requests a rehearing in connection with the Decision on Appeal rendered by the Board on October 19, 2001.

As noted in Appellant's Brief, the Group 1 claims in the present application recite the feature of two circuits having output noise components, resulting from noise experienced by the circuits, that are approximately equal. In affirming the Examiner's rejection of those claims, the Board considered the Examiner's arguments and then concluded as follows:

Since the examiner has shown, in a logical manner, that the two circuits of Iwami would have output noise components, resulting from noise experienced by the circuits, that are "approximately equal," and *appellant has offered nothing to rebut this rationale*, we will sustain the rejection of claim 1 under 35 U.S.C. § 102(b). [emphasis added; Page 4 of Decision on Appeal]

In fact, Appellant's Brief did contain arguments rebutting the Examiner's arguments in this regard. Accordingly, it is believed that the Board may have overlooked such arguments.

Appellant begins by summarizing the Examiner's arguments that were relied upon by the Board. Specifically, the Examiner argued that "since the amplifiers of Iwami may be of 'the same type' [citation omitted] and they are located proximal with respect to each other, it would appear that amplifiers 38 and 40 would experience the same interference noise or electromagnetic environmental noise generated within the system." Page 4 of the Decision on Appeal.

At the outset, and as pointed out in Appellant's Brief, it is noted that the Group 1 claims actually recite the feature that two circuits have output noise components, resulting from noise experienced by the circuits, that are approximately equal. This

claim limitation is somewhat different than merely requiring that two circuits experience the same interference noise or electromagnetic environmental noise.

With regard to the Examiner's argument, the Examiner provides no support for his assertion that "it would appear that amplifiers 38 and 40 would experience the same interference noise or electromagnetic environmental noise generated within the system." As pointed out on page 3 of the "Summary of the Invention" section of Appellant's Brief, environmental noise within a system often will vary greatly based on distances from noise sources within a system. As a result, unless affirmative steps are taken to insure that the output noise components due to environmental noise of Iwami's two amplifiers are approximately equal, there can be no assurance at all that this will be the case.

More specifically, and as also pointed out in the "Summary of the Invention" section of Appellant's Brief, the signal output by a circuit due to noise experienced by the circuit typically will depend upon the precise physical layout of each component and each interconnection making up the circuit. This physical layout often must take into account: (i) the distances from existing noise sources, (ii) orientations relative to such noise sources, (iii) component and interconnection sizes (e.g., widths and lengths, particularly interconnection lengths), and/or (iv) various other factors, such as the effects of noise shielding provided by other components disposed between a subject component and a noise source.

It is noted that factor (i) listed above generally is due primarily to variations in the levels of environmental noise within the system. However, factors (ii) through (iv) can result in different output noise signals even when environmental noise within the system is constant. For example, a particular component mounted on a circuit board or formed on an integrated circuit chip might output one signal due to environmental noise when oriented in one direction and a significantly different signal level due to environmental noise when rotated 90°, even though its location remains unchanged.

Thus, the orientation of even a single component in a circuit can greatly affect the output noise signal due to environmental noise. Similarly, the size of the component and distance from existing noise sources also will influence the noise output by such component. Moreover, the effect of each noise source on any given circuit generally will be the accumulated result of the effects of that noise source on each individual component and each interconnecting wire within the circuit. Because Iwami's amplifiers 38 and 40 most likely are multi-component circuits (e.g., including transistors, resistors, capacitors) with interconnections between such components, each component and each interconnection of each amplifier might experience and/or output a different level of environmental noise. As a result, the cumulative noise signal output by each amplifier is very likely to be different. It is further noted that, where higher frequency noise is present, the relative phases of the noise experienced by the various components of each amplifier also must be taken into consideration when determining the cumulative noise signal output by the amplifier.

In short, the output noise component of the circuit, resulting from noise experienced by the circuit, generally will depend upon a large number of factors. As noted above, unless affirmative steps are taken to insure that the output noise components due to environmental noise of Iwami's two amplifiers are approximately equal, there can be no assurance at all that this will be the case. Most techniques for physically designing a circuit (i.e, placing the components on an integrated circuit or a circuit board and routing the correct interconnections between them) will only consider environmental noise in exceptional cases that have been specifically designated by the designer. By default, typically the main goal of conventional physical design is merely to minimize circuit area. Thus, absent special motivation to consider environmental noise, component and interconnection sizes, distances and orientations generally will be chosen solely to meet that goal.

As indicated above, the consideration of the effect of environmental noise within a system is not a trivial matter. However, there appears no discussion whatsoever of environmental noise in Iwami. This is what Appellant meant in the "Group 1 Claims" section of the Brief when asserting that Iwami does not say anything about noise experienced by his amplifiers and does not disclose that the output noise components of such amplifiers due to such noise are approximately equal. That is, Appellant intended the foregoing comment to be considered in light of the discussion in the "Summary of the Invention" section of the Brief that described the complexity of the factors influencing environmental noise and its effects on circuit and circuit component outputs. However, it is believed that the Board might not have considered the Group 1 Claim arguments within this intended context.

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Because Iwami does not even begin to address the various factors that influence the noise components output by his amplifiers 38 and 40, it is not believed that Iwami could possibly have disclosed that such amplifiers have output noise components, resulting from noise experienced by such amplifiers, that are approximately equal.

Although the Examiner has stated that Iwami discloses this feature of the invention, it is clear that Iwami does not expressly say anything about noise experienced by a circuit. The Examiner has never asserted outright that such a feature is inherent in Iwami. However, to the extent that the Examiner implicitly is concluding that this feature of the invention is inherent in Iwami, the standard for showing inherency is as follows:

To establish inherency, the extrinsic evidence [emphasis added] "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Id. at 1269, 20 U.S.P.Q.2d at 1749 (quoting In re Oelrich, 666 F.2d 578, 581, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981)).

In re Robertson, (Fed. Cir. 1999) 169 F.3d 743, 745; 49 U.S.P.Q.2d 1949.

With regard to the present case, no extrinsic evidence whatsoever has been cited which shows that the above-referenced feature of the invention is necessarily present in Iwami's disclosure. Accordingly, it cannot be said that this feature of the invention is inherent in Iwami.

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Because the above-referenced feature of the invention is neither expressly disclosed nor inherent in Iwami, the Group 1 claims are believed to be allowable over the applied art.

The Board affirmed the Examiner's rejection of the Group 6 claim (i.e., claim 4) by relying on similar arguments set forth above in connection with the Group 1 claims. For similar reasons set forth above, the Group 6 claim also is believed to be allowable over the applied art.

#### **CONCLUDING REMARKS**


The foregoing remarks, taken in substantial part from Appellant's original Brief, clearly show that the applied art does not disclose or suggest the Group 1 or Group 6 claims. The other claims in the application for which the Examiner's rejection was affirmed depend from such claims and are therefore believed to be allowable for at least the same reasons. Accordingly, reversal of the remaining rejections in the application is respectfully requested.

Respectfully submitted,

**MITCHELL, SILBERBERG & KNUPP LLP**

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